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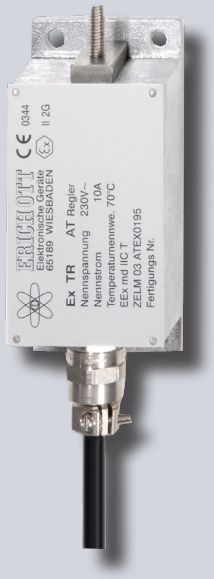
EX T. . . AT

Sensors with switching function



Limiter	TB ....AT
Controller	TR ....AT
Temperature fuse	TS ....AT
Temperature monitor	TW ...AT

Identification	**II 2 G Ex db eb mb IIC T3-T6**
EU-type examination certificate	**PTZ 16 ATEX 0024**
Ambient temperature range	**-45°C - +180°C**
Nominal current	**10 A**
Temperature switch point	**+5 - +180 °C**
Nominal voltage	**230 V**
Protection degree	**IP 66**

Temperature sensor

This temperature sensor without seperate power supply is available as temperature fuse, controller, monitor or as limiter. Destined for the installation in the Ex-area, the temperature acquisiton takes place via a Pt100- sensor in the die-cast aluminium sheet and is directly mounted on the object to be measured.

Devices and protective systems for the intended use in explosion prone areas Guideline 2014/34/EU.

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Warning

The installation, configuration and commissioning may only be carried out by accordingly trained persons. the on-site installation and safety regulations must be considered.

Restriction

We reserve the right for technical changes. Changes, aberrations and printing errors do not justify any claim for damage. For safety components and systems the relevant standards and regulations must be considered as well as the according operating and installation instructions.

Installation notes

For the deployment / operation the EN 60079-14 ff and the applicable deployment regulations as well as the generally recognized rules of technique and this operation manuell are standard.
The sensors, temperature controllers, temperature fuses, and temperature limiters of the type series Ex T.... AT are element of a heating system and audited in connection with the manufacturer's declaration combined with the other components. Only in compliance with this regulation and the relevant VDE guidelines the EU declaration of conformity is valid.
In case of doubt the manufacturer should be consulted or the relevant expert for the system should be questionned.
The devices may not be thrown or fall down. If a deformation is detected on the device, it must be sent back for examination.
For operation of the devices in series connection, with phase angle control not only the effective current is decisive but the minimum resistance of the load must not fall short.
The interconnection of individual licensed components to one heating corresponds to a new unit. For their proper installation generally the temperature behaviour etc. must additionally be re-assessed.

Miscellaneous

- Disassembly takes place in reverse order than the assembly.
- On the basis of the low heavy metal content a defective device must be disposed of as hazardous waste.
- The device is irreparable.
- An operation is not permitted.
- If no company standard is available for the installation on the part of the operator, please inform about the kind of application.
- An application against our recommendations is not permitted.
- In the event of non-compliance of the operating instruction the guarentee expires.

Maintenance

For the maintenance/ service/ examination the regulations of the EN 60079-14 are relevant.

Service

The equipment is maintenance-free.

Read these operating instructions before you take the device into operation. Keep these operating instructions at a place accessible to all users at any time.

Please support us to improve these operating instructios.
We are grateful for your suggestions.

Please contact us for technical queries!
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1.0 GENERAL

Characteristics

- easy installtion
- cost-effective
- sturdy design
- several temperature ranges available

In how far the built-in temperature fuse or rather the reset limiter can after the installation of the heating be also used as limiter for the complete heating, can only be decided by an expert on site.

1.1 BASIC EQUIPMENT

The temperature acquisition acts directly on the switching element. The two-wire technique switches load of 230 V~, 10A.
Depending on the design temperature controller, temperature fuse or temperature limiter, all rated values are fixed.

1.2 RANGE OF APPLICATION

Wherever no high standards are set for the accuracy of the temperature acquisition of heatings and where the media to be measured have a mass that is much larger than that of the sensor, the temperature change should be below 0,2°K/min. The installation on a metal surface is recommended.

1.3 TEMPERATURE CONTROLLER

The sensor as temperature controller (Ex TR...) is switched in row with the acive heater and has not separate voltage supply. Also suitable as monitor (see chapter 1.4). It is to be noted, that it is a high power contact. The switching hysteresis is about 9°K.

1.4 TEMPERATURE MONITOR

The temperature monitor (Ex TW) opens the contact at under temperature. It signals the blackout of a heating.

1.5 TEMPERATURE FUSE

The temperature fuses are irreparably damaged after the exceeding of the temperature. The construction of a heating apparatus should be designed in order that other monitoring systems in the heater always respond earlier, so that no unacceptly high temperature exists at the temperature fuse. Scope of application especially where the value of the temperature fuse usually is not to be expected und where the max. longer existing value 30°K lies below the nominal value of the temperature fuse.

1.6 TEMPERATURE LIMITER

Same case of application as temperature fuse, but with the following advantages: it can be resetted and the constant temperature load is about 12°K below nominal value. It has though a larger mass.

1.7 SAFETY-RELATED INFORMATION

The limiter can be resetted manually. The switching element of the limiter is integrated for millionfold in domestic appliances and office equipment. The additional mechanism for automatic return is modified so that a triggering caused by temperature rise can not be avoided. The limiter can only be switched on again, when the temperature has fallen below 40°C. The complete Atex approval documentation can also be inspected under www.erich-ott.de as PDF document.

1.8 CABLES AND LEADS

The supply line, if it is longer than 5m, should have an outer braiding for EMV suitable installation, that is connected with PE at the feeding point. The minimum cross-section is 1,5 mm². The voltage drop at 230 V is not to be determined according to the effective current, but as if the load resistor was connected directly to the net. At three-phase current moderate distribution the neutral conductor must be fully resilient.

1.9 COMPENSATORY CIRCUITS AND INTERFERENCE SUPPRESSION MEASURES

PE-conductors and N-conductors must be led seperately from the switch cabinet. If this connection is disconnected in the switch cabinet, it must be possible to check the insulation value with ≥0,5kV. According to the regulation the larger value applies.

2.0 GENERAL TECHNICAL DATA

Nominal value	230 V~ or lower (but not below 12 V)	
Temperature setpoint	see table (chapter 3.2)	
Nominal current	10 A	
Design	Aluminium cabinet sealing technique	
Ambient temperature	-45 - 180°C qualified according to table (chapter 3.2)	
Dimensions L x W x H (mm)	95 x 40 x 35 for limiter 74 x 37 x 28 for controller and fuse	
Electrical connection	PTFE cable, 3 x 1,5 mm² , 1,2 m lang, ∅ 5-6 mm	
Ignition protection category (Gas)	II 2G Ex db eb mb IIC T3-T6 according to design (see table, chapter 3.2)	
Protection class	IP66 / DIN 40 050	
Standard conformity	The equipment meets the requirements of the EN 60079-0:2012+A11:2013, EN 60079-1:2014, EN 60079-7:2015, EN 60079-18:2015	
Wiring configuration	brown - switching element blue - switching element yellow/green - cabinet	
EU-type examination certificate	PTZ 16 ATEX 0024	
Identification	CE 0344	Ex II 2 G Ex db eb mb IIC T3-T6 according to design (see table chapter 3.2)

3.0 PRODUCTION NUMBER

xxxx / 03.03

Year
Month
Serial number

3.1 TYPE CODE

Ex T _ **1** _ **2** _ **3** **AT**

1	B	Limiter
	R	Controller
	S	Temperature fuse
	W	Temperature monitor

2		Nominal temperature (see table)

3	-	Standard
	s	with protective hose

Tabelle 1

Typ	Nominal temperature value °C											
Ex TR		10	30		50	70	80		100				
Ex TW	5	10		40									
Ex TB								94	100		112		175
Ex TS										110		120	

Please observe the table (chapter 3.2).

Example: Limiter with a nominal temperature of 112 °C, without protective hose:

Ex T **B** (1) **112** (2) _ (3) **AT**

3.2 TEMPERATURE CLASSES

The temperature classes consider, also in optimal use, the temperature rise after the switching off.

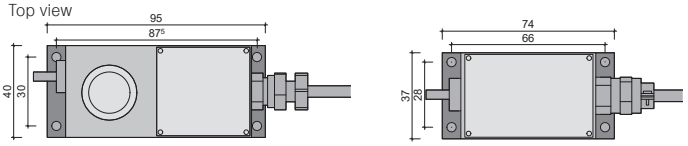
Zone division	Zone 2			Zone 1		
Temperature class	T6	T5	T4	T3	T2	T1
Max. admissible ambient temperature	70	85	120	180	-	-

4.0 INSTALLATION SITE

The sensors of the type series Ex T.. AT are destined for the use in installations, for example in instrument protective cabinets, on the pipeline etc.

Limiter Controller

Top view



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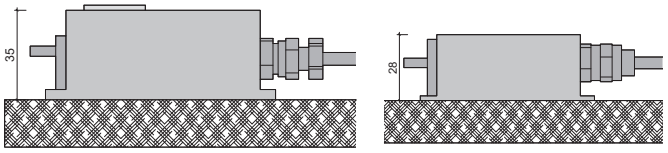
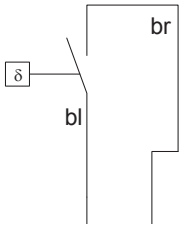


temperature controlling medium

temperature controlling medium

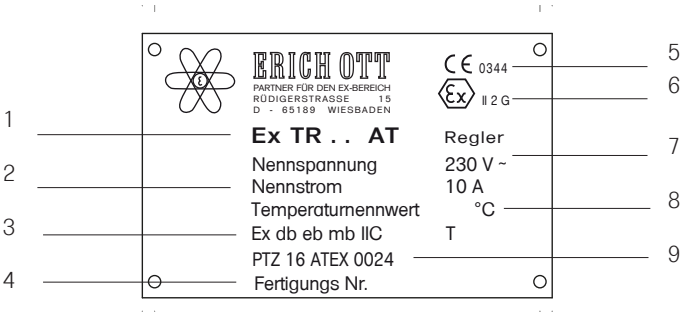
5.0 CONNECTION PLAN



6.0 PROTECIVE MEASURE

The protective measure for the heating circuits is grounding (equipotential bonding). Due to often long supply lines and corresponding capcitive leakage currents, which can significantly increase because of the humidity saturation of the insulation, residual current circuit breakers with 300 mA are advisable. Depending on brands, residual current circuit breakers respond differently.

7.0 NAMEPLATE



1-	Type designation	5-	Auditing body
2-	Nominal current	6-	Ex- identification
3-	Ignition protection category	7-	Nominal voltage
4-	Production number	8-	Temperature rating
		9-	EU-type examination certificate

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